Oct. 20, 1925. 1,557,627

C. G. SWEBILIUS

FIREARM

Filed May 17, 1919 3 Sheets-Sheet 1

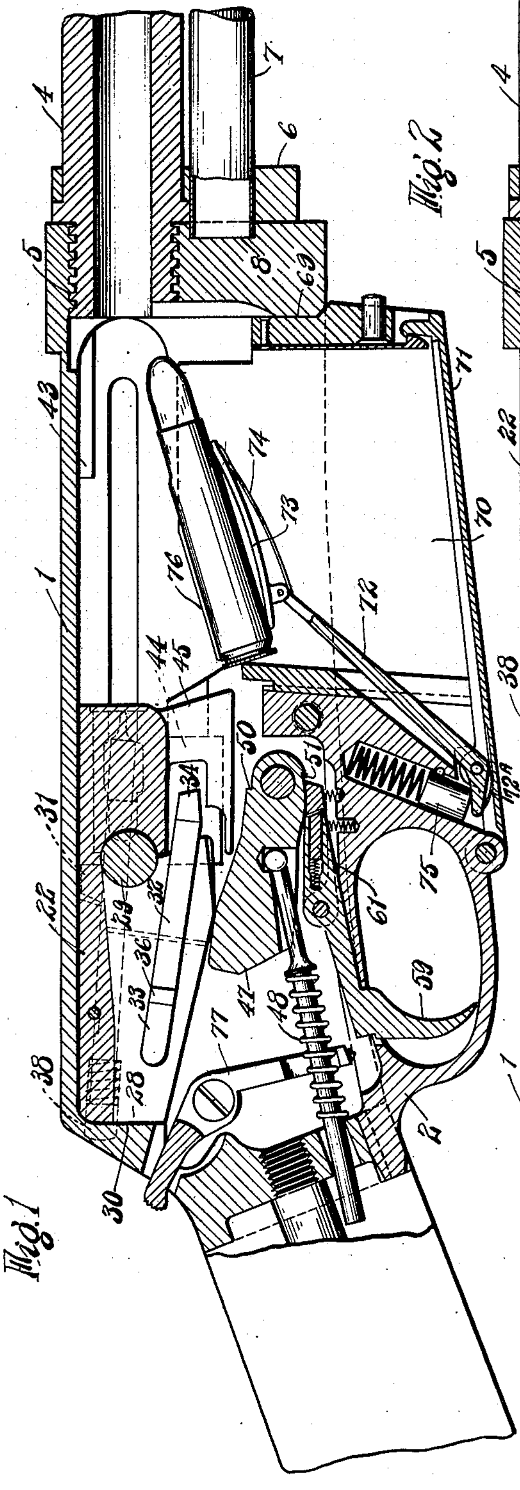
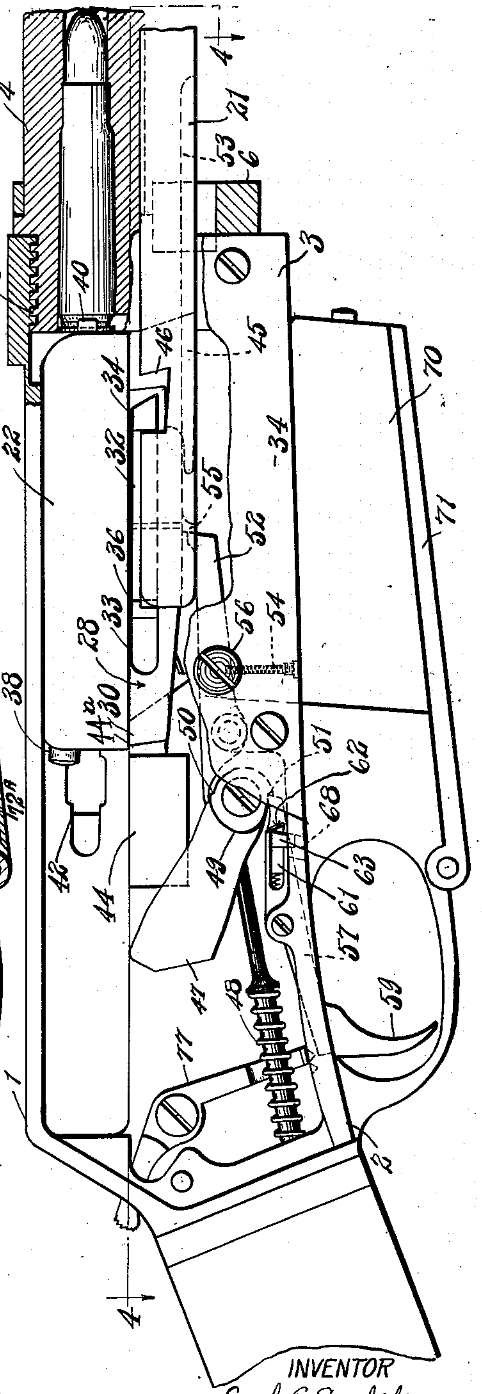


Fig. 1

Fig. 2



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FIREARM

Filed May 17, 1919 3 Sheets-Sheet 2

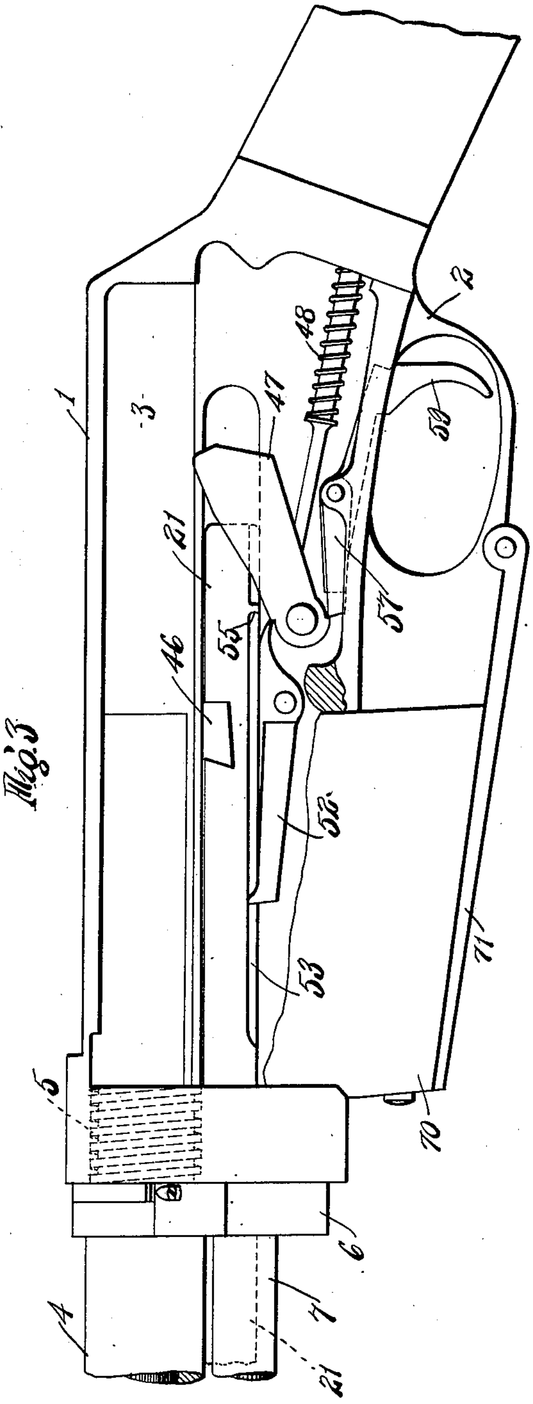

Fig. 3

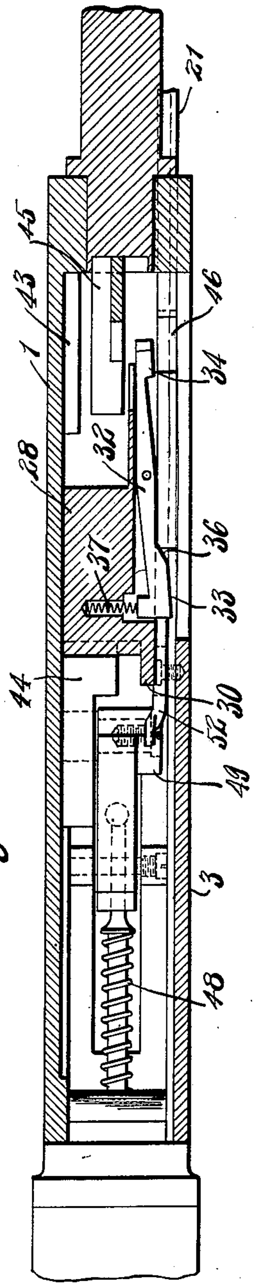

Fig. 4

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3 Sheets-Sheet 3

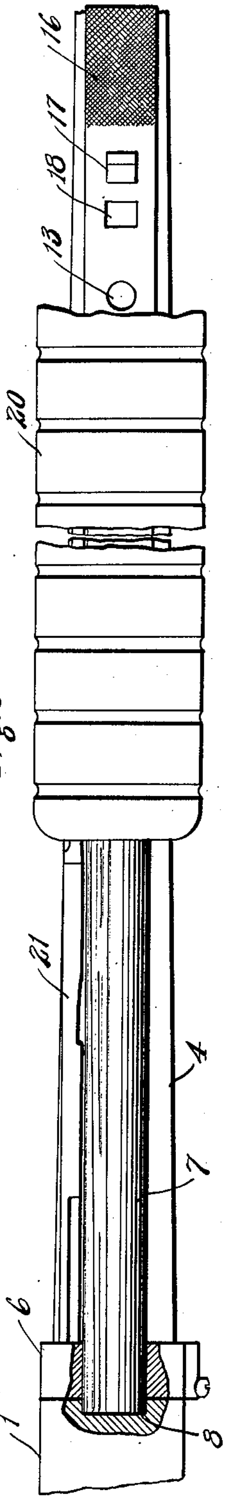

Fig. 5

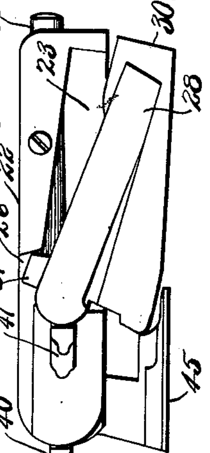

Fig. 9

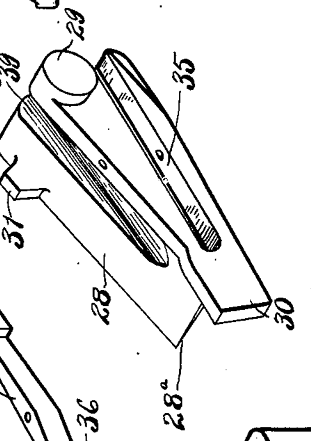

Fig. 8

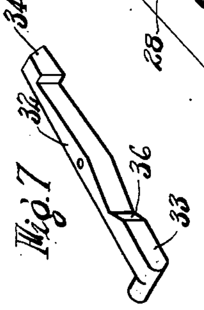

Fig. 7

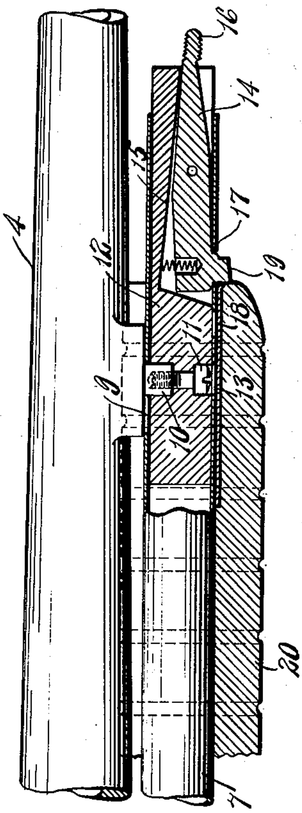

Fig. 11

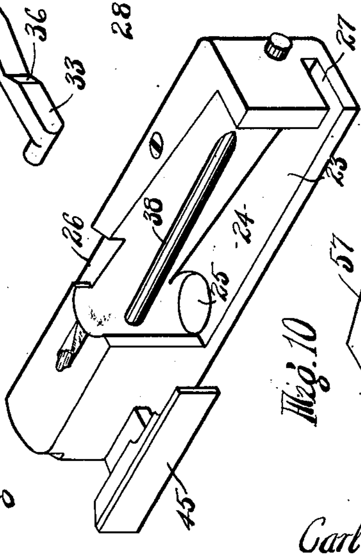

Fig. 6

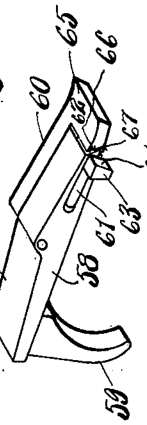

Fig. 10

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Patented Oct. 20, 1925. **1,557,627**

UNITED STATES PATENT OFFICE.

CARL GUSTAF SWEBILIUS, OF NEW HAVEN, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE MARLIN FIREARMS CORPORATION, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF DELAWARE.

FIREARM.

Application filed May 17, 1919. Serial No. 297,829.

To all whom it may concern:

Be it known that I, Carl Gustaf Swebilius, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Firearms, of which the following is a specification.

This invention relates to firearms of the repeating type, and consists of many new and useful improved features of construction as hereinafter pointed out.

One of the objects includes an improved take-down construction whereby the barrel may be separated from the receiver for convenience in packing and transportation.

Another object of the invention is the novel combination and grouping of the breech elements, and more particularly, the locking means for the breech bolt.

Still another object is the provision of a trigger so arranged as to prevent an unintentional or accidental discharge of the gun.

The novel arrangement of the magazine and its component elements constitutes a further object of the invention.

Other novel features will be apparent from a reading of the following specification and an examination of the accompanying drawings which illustrate the invention in preferred form.

In the drawings,

Fig. 1 is a longitudinal section through the receiver with the breech bolt in its rear position;

Fig. 2 is a side elevation with the breech bolt in locked position, one side plate being partially broken away;

Fig. 3 is a side elevation from the opposite side, the side plate and breech bolt being removed;

Fig. 4 is a section on the line 4—4 of Fig. 2;

Fig. 5 is a bottom view of the front portion of the gun;

Fig. 6 is a perspective of the breech bolt with the locking lever removed but with the firing pin in place;

Fig. 7 is a perspective of the locking lever detent;

Fig. 8 is a perspective of the locking lever;

Fig. 9 is a reverse side elevation of the assembled breech mechanism;

Fig. 10 is a perspective of the trigger;

Fig. 11 is a detail of the take-down mechanism.

A receiver 1, having the removable bottom member 2 and the detachable side plate 3, carries the barrel 4 which screws into the forward end of the receiver, as indicated at 5, the screw thread being appropriate to permit the ready screwing of the barrel 4 into place and the unscrewing of the same for the purpose of "taking down" the gun. A bracket 6 is carried by the barrel near its rear end and is provided with an aperture through which the preferably tubular member 7 extends into a socket 8 in the front wall of the receiver 1. In the forward end of the member 7 is cut an elongated slot 9 through which projects a stud 10 rigidly attached to the barrel 4. By means of a screw 11 there is attached to the stud a generally cylindrical member 12 of suitable dimensions to firmly support the tubular member. An aperture 13 is provided in the tubular member through which the screw 11 may be inserted or removed. A dog 14 is pivotally mounted in a groove 15 cut in said cylindrical member and its end 16 extends beyond the end of the member 7. In the member 7 are cut two apertures 17 and 18, through the former of which the projection 19 on the dog 14 is adapted to completely protrude under proper conditions and the latter of which allows a partial projection thereof.

Slidably mounted on the tubular member is a grip 20 from which the sliding action rod 21 extends rearwardly into the receiver through a suitable slot in the front wall thereof. The forward movement of the grip is limited by its engagement with the projection 19 when the latter protrudes through the aperture 17.

Reciprocatively mounted in the receiver is the breech bolt 22, part of which is cut away to form a recess 23, the rear end thereof being arcuate. In the wall 24 of this recess is cut a circular socket 25 in alinement with the arcuate end thereof. A groove 26 is provided in the upper wall and a slot 27 is cut through the rear wall thereof. A locking lever 28 of the same general configuration as the recess and having the rear oblique face 28^a is pivotally mounted therein, a stud 29 being provided on the lever to seat in the socket 25. At the rear end of the locking lever is an extension 30 which fits in the slot 27. The lug 31 extends from the upper part of the locking lever into the groove 26. A detent 32, having the heads 33 and 34, is pivotally mounted in the groove 35 extending longitudinally of the locking lever in such a way that it is possible to depress either head below the surface of the locking lever. This detent is so arranged on the locking lever that in order to rotate the lever into its recess it is necessary to rotate the detent until the head 33 is flush with the surface of the locking lever. When the locking lever is in its locking position the detent prevents the upward movement thereof by the engagement of the head 33 with the bolt. Extending from the head 33 to the intermediate portion of the detent is the cam surface 36, which is adapted to be engaged by the rear end of the action rod 21. A spring 37 engages the detent near the head 33 and exerts a tension outwardly thereagainst. The firing pin 38 extends longitudinally of the bolt and traverses the recess 23. A groove 39 is cut in the locking lever 28 to receive the firing pin. The engagement of the firing pin in this groove prevents lateral movement of the locking lever and thus maintains it in the recess by preventing the disengagement of the stud 29 from the socket 25. An extractor 40 of the usual type is carried by the bolt at its front end. In the forward part of the bolt, the ejector 41 is reciprocatively mounted obliquely of the bolt and is adapted to be projected by the engagement of the rear end thereof with a suitable lug 42 on one wall of the receiver. A portion of the bolt directly in front of the groove 26 is cut away to allow the lug 31 to abut against the stop 43 in the receiver when the bolt is in its forward position. At approximately the center of the receiver is the stop 44 having an oblique forward face 44^a against which the coacting oblique rear face 28^a of the locking lever is adapted to engage when the gun is locked. Extending downwardly from the front end of the breech bolt is the projection 45. In the rear part of the action rod is a groove 46 of the same general configuration but of slightly larger size than the head 34 and at such a distance from the rear end of the action rod that when the rear end of the action rod engages the cam surface 36 to depress the head 33, the head 34 enters the groove. The hammer 47 is pivotally mounted in the receiver and pressed forward by the spring 48 in the well known manner. On an eccentric hub 49 extending from the hammer are cut the shoulders 50 and 51 approximately diametrically opposite to each other. A sear 52 is pivotally mounted intermediate its ends on the side plate 3 of the receiver and is so arranged that one end is adapted to engage the shoulder 50 on the hub 49 and the other end is normally maintained in engagement with the bottom of a groove 53 in the rear part of the action rod by means of the spring 54. In the groove 53 is a projection 55 adapted to engage the cam projection on the forward end of the sear. A button 56, having a shank extending through a suitable slot in the wall 3 of the receiver and engaging the sear, provides means to oscillate the sear from the exterior of the gun.

The trigger 57 is pivoted to the bottom plate near the rear thereof. This trigger comprises a main member 58, having a finger piece 59 which is pivotally mounted intermediate its ends and the supplementary hammer-engaging member 60 hung at one end on the same pivot as the member 58. In the forward end of the main member 58 is reciprocatively mounted a spring-pressed dog 61 having an oblique end 62 and a lateral lug 63 with an oblique face 64. The member 60 projects beyond the front of the member 58 and has a lug 65 extending across the front end thereof adapted to engage the shoulder 51 on the hammer. This lug has an oblique rear face 66 coacting with the end 62 and a lip 67 normally extending below the dog 61. In the bottom plate 2 is a slot 68 having an oblique wall adapted to coact with the face 64. Each of the portions 58 and 60 are pressed upwardly by separate springs.

An aperture 69 is cut in the bottom plate through which extends the magazine 70 which is closed by the lid 71. Pivoted on the lid 71 is the lever 72 which also has pivoted to one end the plate 73 pressed by the spring 74 to normally aline with the lever. In the bottom plate is a spring-pressed plunger 75 which, when the lid is shut, bears against the short end of the lever 72 to normally hold the front end thereof elevated. A leaf spring 72^A is mounted on the lid 71 and bears against the short end of the lever 72 normally to hold the lever 72 against the lid 71 when the latter is opened. The rear part of the upper end of one wall of the magazine is bent in as at 76 to act as a stop to position a cartridge in the path of the member 45 and is slanted to allow the forward end of a cartridge to tilt upwardly.

A safety lever 77 is pivoted to one wall of the receiver. One end extends through the receiver and the other end is adapted to contact, in one position, with the trigger to prevent oscillation thereof.

If it is desired to "take down" the gun, the end of the member 7 is grasped with thumb and middle finger and the dog 14 operated with the fore finger in such a way as to withdraw the lug 19 thereof from the aperture 17, and the tubular member moved outwardly until the lug can project into the aperture 18. This movement will disengage the inner end of the member 7 from the socket 8. The action rod 21 is then moved forward by means of the grip 20 until it is clear of the receiver, this being possible since the action rod is disengaged from the head 34 of the detent 32 when the breech bolt is in locked position and the projection 19 no longer extends sufficiently to prevent the forward movement of the grip. The barrel is then unscrewed from the receiver.

The operation of the gun is as follows: Starting with the elements in the position shown in Fig. 2: A pull on the finger piece 59 of the trigger causes a partial rotation of the members 58 and 60. As this rotation proceeds the end of the lug 65 of the member 60 moves from engagement with the shoulder 51 and releases the hammer. During this rotation the dog 61 by the engagement of the lug 63 and the wall of the groove 68 has been pushed in slightly. As the trigger approaches the limit of its movement, the dog is disengaged from the lip 67 and allows the portion 60 to move up. To again trip the member 60 it is necessary to release the finger piece and allow the member 58 to take up its original position, this being possible since the dog 61 will yield as the member 58 moves up because of the engagement of the oblique end 62 and lip 67. The eccentric part of the hub 49 raises the rear end of the sear 52 and disengages the forward end from the projection 55 on the action rod.

To cock and load the gun, the grip 20 is pulled rearwardly. The movement of the grip is communicated to the action rod 21. On its rearward movement the end of the action rod strikes the oblique surface 36 on the detent 32 and causes it to rotate until the inner end 33 is flush with the surface of the locking lever. This rotation also causes the lug 34 on the front end of the detent 32 to engage in the groove 46.

The locking lever is now free to move and the pressure applied thereto through the action bar and detent 32 is effective to throw the locking lever up into the breech bolt and out of engagement with the lug 44, this movement being aided by the camming action of the oblique faces 28^a and 44^a, and a similar action exerted by the oblique faces on the head 34 and in the groove 46. After the locking lever has been raised, the bolt is carried back to the rear end of the receiver. On its rearward travel, it engages the hammer 47 and rotates it sufficiently for the end of the sear to engage the shoulder 50. Also the ejector is projected by the engagement of its rear end with the lug 42 and throws the cartridge out through the ejecting opening. On the forward movement of the breech bolt, the projection 45 strikes against the rear end of a cartridge and chambers it. After the bolt has reached its forward position the further movement of the action rod pulls down the locking lever into engagement with the stop 44. The detent is thus released and the end 33 moves out into engagement with the wall of the recess 23 to prevent upward movement of the locking lever. At the same time the lug 34 is disengaged from the groove 46, and the sear is tripped by virtue of the cam action of the projection 55 on the forward end of the sear. The tripping of the sear allows the hammer to rotate until the member 60 of the trigger engages the shoulder 51. The forward end of the sear engages with the rear of the projection 55 and prevents the accidental unbreeching of the gun. The sear may be intentionally moved by means of the button 56 to allow the breech to be opened.

The cartridges are presented in proper position by means of the lever 72 and the stop 76. The spring-pressed plunger 75 causes the lever to feed the cartridges upwardly against the stop. The spring 74 forces the plate to assume the proper angle to keep the cartridges in contact with the oblique stop 76. The breech bolt is given an initial quick rearward movement by the engagement of the lug 31 on the locking lever with the projection 43 in the receiver. As the locking lever rotates, the engagement of these two parts serves to throw back the bolt.

The arrangement of the members 58 and 60 constituting the trigger, in combination with the groove 68 in the bottom plate, makes it impossible to accidentally fire the gun as it is necessary after firing to release the member 58 to allow it to again engage with the member 60. The sear is not tripped until the breech bolt is in locked-up position and at that time it locks the action rod in its forward position so that it is impossible to accidentally or unintentionally unbreech the gun when the hammer is cocked.

What I claim is:

1. In a repeating firearm, a receiver, a breech bolt therein, a locking member operatively associated with said breech bolt, a detent mounted on said locking member for maintaining said locking member in operative position, an action slide for operating said breech bolt, and means for actuating said detent by said action slide.

2. In a repeating firearm, a receiver, a breech bolt therein, a recess in said bolt, a locking lever pivotally mounted in said recess, a locking lever detent mounted on said locking lever and adapted to engage the wall of said recess to maintain said locking lever in one position, an action slide for operating said breech bolt, and means for actuating said detent by said action slide.

3. In a repeating firearm, a receiver, a breech bolt therein, a recess in said bolt, a locking lever pivotally mounted in said recess, a locking lever detent pivotally mounted in a groove in said locking lever, heads at opposite ends of said detent, one of said heads engaging the wall of said recess when said locking lever is in one position, an action slide having a slot to receive the other of said heads, and means for actuating said locking lever detent by said action slide.

4. In a repeating firearm, a receiver, a breech bolt slidably mounted therein, a recess in said bolt, a locking lever pivotally mounted in said recess, a locking lever detent pivotally mounted on said locking lever, means to project one end of said detent when the locking lever is in locking position, an action slide, means on said detent adapted to be engaged, when the locking lever is in locking position, by said action slide to rotate said detent.

5. In a repeating firearm, a receiver, a stop carried by one wall of the receiver, a breech bolt slidably mounted therein, a recess in said bolt, a locking lever pivotally mounted therein, said lever being adapted to engage said stop, a detent pivotally mounted on said locking lever, one end of said detent being adapted to engage the bolt to hold the locking lever in engagement with the stop, an action slide and means on said slide and detent to disengage said head from engagement with the bolt to allow rotation of the locking lever to disengage it from the stop.

6. In a repeating firearm, a receiver, a stop carried by one wall of the receiver, a breech bolt slidably mounted therein, a recess in said bolt, a locking lever pivotally mounted therein, said lever being adapted to engage said stop, a detent pivotally mounted on said locking lever, heads at the opposite ends of said detent, one of said heads being adapted to engage the bolt to hold the locking lever in engagement with the stop, an action slide, means on said slide and detent to disengage said head from engagement with the bolt to allow movement of the locking lever to disengage it from the stop and means on the action slide to engage said other head of the detent after the disengagement of said first head from the bolt.

7. In a repeating firearm, a receiver, a breech bolt therein, a locking member therefor, an action slide for operating said breech bolt and locking member, a pivotally mounted hammer having an eccentric hub, and a lever having one end adapted to engage said action slide to hold it in one position, and another end adapted to ride on said hub whereby the first named end of said lever is disengaged from said action slide upon the rotation of said hammer.

8. In a repeating firearm, a breech bolt, an action slide operatively connected therewith, a pivotally-mounted hammer, an eccentric hub on said hammer, a shoulder on said hub, a pivoted sear, one end of which is adapted to engage said shoulder to hold said hammer in cocked position, means on said action slide to rock said sear to disengage it from said shoulder, and means on said action slide to be engaged by said sear to prevent rearward movement of said action rod, said first named end of said sear being adapted to be engaged by said eccentric hub whereby said sear is disengaged from said action rod upon rotation of said hammer.

9. In a repeating firearm, a breech bolt, an action slide operatively connected therewith, a pivotally-mounted hammer, an eccentric hub on said hammer, shoulders on said hub, a trigger adapted to engage one shoulder, a pivotally-mounted sear adapted to engage the other shoulder, a groove in said action slide, a projection in said groove, a spring to normally force the forward end of said sear into said groove whereby on the locking of the breech bolt the rear end of the sear is disengaged from one shoulder of the hammer to allow it to rotate to bring the other shoulder into engagement with the trigger and then the sear abuts against the projection to prevent unbreeching of the bolt until after the sear is disengaged therefrom by the engagement of the eccentric portion of the hub with the rear end of the sear after the hammer is released.

10. In a repeating firearm, a breech bolt, an action slide, a hammer having a shoulder, a sear pivotally mounted with one end adapted to engage said shoulder, means on said action slide to rock said sear from engagement with said shoulder and to be engaged by said sear to prevent rearward movement of the action slide, means on said hammer to disengage said sear from said means on the action slide, and a lost motion connection between said breech bolt and action slide whereby said sear is disengaged from said shoulder only after the breech is completely closed.

11. In a repeating firearm, a breech bolt, an action slide, a hammer having a shoulder, a sear pivotally mounted with one end adapted to engage said shoulder, means on said action slide to rock said sear from engagement with said shoulder and to be engaged by said sear to prevent rearward movement of the action slide, means on said hammer to disengage said sear from said means on the action slide, means to operate said sear-engaging means, and a lost motion connection between said breech bolt and action slide whereby said sear is disengaged from said shoulder only after the breech is completely closed.

12. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, a lever pivoted to said lid and having one end extending into said magazine, and a resilient member carried by said lid, said resilient member being in contact with the other end of said lever to press said first end toward said lid.

13. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, a lever pivoted to said lid and having one arm extending into said magazine, a resilient member carried by said lid, said member being in contact with the other end of said lever, and resilient means exterior of said lid and adapted to engage said last named end of said lever when said lid is closed.

14. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, a lever pivoted to said lid and having one end extending into said magazine, means urging said end toward said lid, a plate pivoted to said end of said lever, and means to urge said plate into alignment with said lever.

15. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, a lever pivoted to said lid and having one end extending into said magazine, means urging said end toward said lid, a plate pivoted to said end of said lever, means to urge said plate into alignment with said lever, and resilient means adapted to engage the other end of said lever.

16. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, a lever pivoted to said lid and having one end extending into said magazine, a plate pivoted to said end of said lever, means to urge said plate into alignment with said lever, and resilient means exerting pressure on said lever to press said plate carrying end toward said lid.

17. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, a lever pivoted to said lid and having one end extending into said magazine, a plate pivoted to said end of said lever, means to urge said plate into alignment with said lever, resilient means exerting pressure on said lever to press said plate carrying end toward said lid, and superior resilient means acting on said lever to force said plate carrying end away from said lid, said last named means being effective only when said lid is closed.

18. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, a lever pivoted to said lid and having one end extending into said magazine, a plate pivoted to said end of said lever, means to urge said plate into alignment with said lever, resilient means carried by said lid and exerting pressure on said lever to press said plate carrying arm toward said lid and superior resilient means mounted in said receiver and acting on said lever to force said plate carrying end away from said lid, said last named means being effective only when said lid is closed.

19. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, a lever pivoted to said lid and having one arm extending into said magazine, and resilient means engaging the other arm of said lever to urge said first named arm toward said lid.

20. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, a lever pivoted to said lid and having one arm extending into said magazine, resilient means exerting pressure to urge said arm toward said lid, and superior means to urge said arm away from said lid, said last named means being effective only when said lid is closed.

21. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, a lever pivoted to said lid at a point removed from the lid pivot and having one arm extending into said magazine, a plate pivoted to said arm, resilient means to urge said plate into alignment with said arm, and an oblique stop at the inner end of said magazine.

22. In a repeating firearm, a receiver, a magazine in communication therewith, a pivoted lid for said magazine, an oblique stop at the inner end of said magazine, a lever pivoted to said lid at a point removed from the lid pivot and having one arm extending into said magazine, a plate pivoted to said arm, resilient means tending to hold said plate in alignment with said arm, and resilient means for exerting pressure on the other arm of said lever only when the lid is closed, said arm and plate serving to feed cartridges against said oblique stop.

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